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# Improving Patient Care Outcomes to Reduce Recurrent Admissions of Patients with Chronic Obstructive Pulmonary Disease

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IMPROVING PATIENT CARE OUTCOMES  
TO REDUCE RECURRENT ADMISSIONS OF PATIENTS  
WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

BY

LISA MARIA FRIEDRICH

DNP Scholarly Project Committee:

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Submitted in partial fulfillment of the Requirements for the degree of  
Doctor of Nursing Practice  
Seton Hall University

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by

Lisa M. Friedrich

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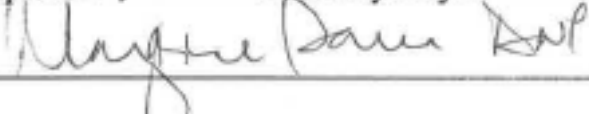
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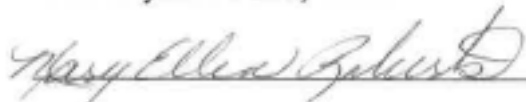
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## **Dedication**

This project is dedicated lovingly to my husband John and children Zachary and Nicholas for their support, encouragement, and constant love that have sustained me.

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### **Abstract**

**Purpose:** Transitional care is time-limited, with the goal of ensuring safety and health continuity for at-risk patients with chronic obstructive pulmonary disease (COPD) as they move from one setting to the next. An acute care episode of COPD ranges from relatively healthy adults to adults with multiple chronic conditions or those in the end-of-life phase. The primary quality concern of an urgent need to improve health care is in response to the gaps of sufficient experience to manage patients with COPD, leading to hospital readmissions. Implementation of standards of care for the improvement of health-related quality of life (HRQL) of COPD patients is intended to reduce the rate of adverse events and hospital readmissions.

**Method:** The project was implemented in collaboration with the transitional health care team at a local medical hospital. For the challenge of high levels of readmissions, coaching models for patient advocacy required continued tracking to decrease readmissions within 30 days to avoid penalties. The goal was to reduce the all-cause readmission rate by 20%. A detailed plan of action customized for the purpose of designing strategic interventions addressed health care reform. Practical education aimed at staff, patients, and family members are the standard for the delivery of health care for patients with COPD. Decision supports for a change of behavior and adaptations had a significant role in client care. Case managers, nurse practitioners, physicians, nurses, pharmacists, and dieticians formulated solutions in patient safety during the acute phase. As a result, cost-effective care reduced medical costs, decreased recurrent hospital stays, and improved patient satisfaction.

**Findings:** Cultures, socioeconomics, and gender had an effect on the transitional approach. Coach status had positive effects on the population's shared decision-making requirements. Religion and health disparities considered, patients had universal needs across the



population. The biggest impact made was with pharmacy involvement and elderly polypharmacy involving potential adverse drug events. The pharmacist counseled patients on medication with accuracy. Case studies and preliminary results identified gaps. Results identified multiple errors per patient. Intervention scores had a greater improvement over a nine-month period.

**Conclusions:** Citizen ties to a community-based organization (CBO) are critical for the improvement of the quality of life in low-income areas. Services and resources with strategies expand the legitimacy of low-income communities with a devoted effort for goal accomplishment (Walker & McCarthy, 2010). Implementing cost containment and competitive strategies for an alternate health care delivery system generates savings and improves the management of chronic disease. Determining costs associated with exacerbations of COPD and an acute exacerbation of chronic bronchitis (AECB) is specific to controlling costs derived from treatment failure and hospitalization. The leading preventable risk factor associated with chronic lung disease for further study is smoking. Determining the underlying addiction and further education may also be an area for further research to consider. Treatment failure causes further medical visits, emergency room visits, and potentially extended hospital stays (Miravittles et al., 2002). Access to clinical excellence for the successful transition from the hospital, across settings, prevented readmissions. The impact of reducing recurrent admissions for patients discharged with chronic obstructive pulmonary disease improved patient care outcomes.

## **Background**

Quality standards require competent management and highly trained staff for the desired expected outcome of services. For a nurse practitioner in pulmonary critical care, the goal when treating COPD patients is an overall improvement in quality of life to avoid hospitalization. The aim is to develop a transitional model of care utilizing the approach developed by Mary Naylor, focusing holistically on the patient and providing evidence-based practices for the likelihood of effective outcomes (Naylor & Keating, 2008). Patient and family participation in the discussion about transitional care is needed for the duration of the health care process (Ransom et al., 2008). Consumer trust and communication with the health care team promote patient safety. Patient-centered care improves the odds of patient safety by reducing medical errors (Ransom et al., 2008). Consumers are given encouragement to consider their health care needs. Individuals suffered unnecessarily due to lack of inclusion of patient information or lack involvement (CAPS, 2014).

The structural component of team member roles is essential to patient outcomes. Due to the multifactorial dimensions of defined quality care, it is hard to consider the patient's unitary concept of quality patient care (Donabedian, 2005). The Agency for Healthcare Research and Quality (AHRQ) sets national guidelines and clinical recommendations for evidence-based research (NCG, 2013). Team members include physicians, nurse practitioners, physician assistants, nurses, medical assistants, respiratory therapists, physical therapists, dietitians, pharmacists, and case manager contributors. The primary care practitioner, who will assume the role of team leader, coordinates and handles patient intake, follow-up, and electronic medical record (EMR) registry. Other referrals and integrated team members of collaborative care are proactive in promoting smoking cessation, pharmacotherapy, physical activity, and vaccinations.

The improvement approach of quality and patient safety focuses organizational change on principles of commitment and respect through constructive feedback and critical analysis (Connor et al., 2007). The responsibility of leaders is to help overcome traumatic situations through transparency and to learn from errors without focusing on blame (von Thaden et al., 2006). Although surveys can provide insight into patient satisfaction levels, it is better outcomes that demonstrate improved performance.

Plan (What we are trying to accomplish for our COPD patients?)

Overall improvement in patient care and patient participation emerge through transparency and fair and just culture for the improvement of health-related quality of life (HRQL).

Do (The implementation of patient-centered care for our COPD patients.)

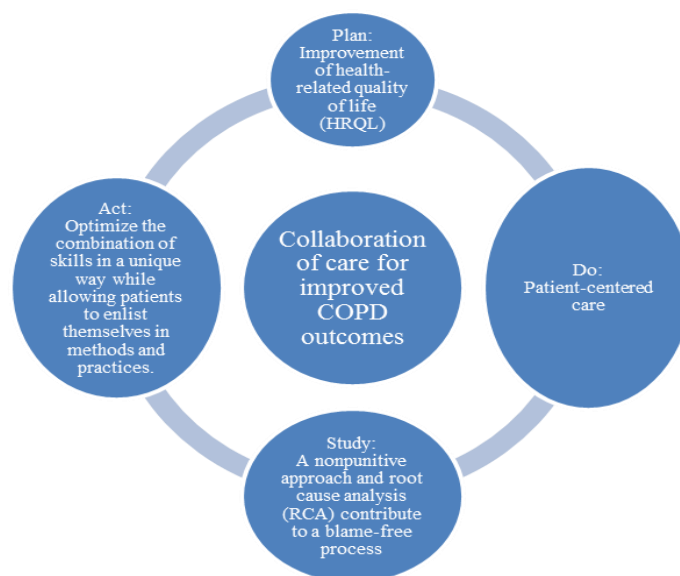
Implement measurable patient-centered care for COPD patients. First, access health care for same-day appointments and group visits. Second, emphasize respect for patients. Third, coordinate care with a focus on COPD by attending to the specific needs of individual patients, their home settings, their access to help. Fourth, communicate, educate, and train staff in collaborative, multidisciplinary team and third-party disease management programs. Fifth, comfort patients with dedicated visits for maintenance of COPD involving medication management, education, or other protocols. Sixth, offer emotional support. Seventh, include family involvement. Eighth, ensure safe transition and health care continuity for risk reduction measures including vaccination and smoking cessation.

Study/Check (What did we learn about our COPD patients and their admission rates?)

A nonpunitive approach and root-cause analysis (RCA) contribute to a blame-free process; however, accountability is still an expectation. Data collection plan includes COPD risk awareness questionnaires and adherence to guidelines surveys. Dashboards visualize the history of COPD, emphysema, and comorbidities to identify high-risk patients requiring follow-up visits. Medication for preventable adverse reactions includes compliance with meter dose inhaler (MDI) use, oxygen, and beta agonist steroids, intravenous or oral. A follow-up visit with the primary care provider includes monitoring forced expiratory volume in one second (FEV1) pre- and post-bronchodilators (Almagro et al., 2002). Monitoring oxygen saturation, smoking history, and oxygen dependence promotes self-management to prevent readmission.

Act (What triggers readmission and how to do better for our COPD patients?)

Reconceptualize their sequence of care by optimizing the combination of skills in a unique way, allowing patients to enlist themselves in methods and practices.



PDSA (Ransom et al., 2008)

Dimensions of quality aim for the improvement of COPD patients. The Institute of Medicine's (IOM's) *Crossing the Quality Chasm* (Kohn, Corrigan, and Donaldson, 2001) indicated that little is known about integrating knowledge into a process consistent with complex healthcare needs and standardized care necessary for multiple serious illnesses. *To Err is Human* (Kohn, Corrigan, and Donaldson, 2000) recommended an increase in healthcare standards through licensing, certification and accreditation, implementing safety systems within healthcare organizations that improve reliability of safe practices provided by clinicians applied to the clinical setting. The six dimensions of quality include:

**Safe.** The promotion of quality and patient safety focuses organizational change on principles of commitment and respect for constructive feedback and critical analysis (Connor et al., 2007). The delivery of quality improvement (QI) requires the committed participation of the interdisciplinary team (Curtis, 2006). Implementation of standards of care is increasing for the improvement of health-related quality of life (HRQL) of COPD patients and reduction in the rate of adverse events.

**Effective.** Effective education aimed at staff, patients, and family members is the standard of the delivery of health care. Decision supports for a change of behavior and adaptations to behavior have a major role in client care and are best served by case managers. As a result, cost-effective care reduces medical cost and decreases the length of hospital stays. COPD morbidity and mortality may affect hospital standardized mortality ratio (HSMR) (Reinertsen et al., 2008).

**Efficient.** Measuring the occurrence of underdiagnosed COPD with early diagnosis and the effect of airflow limitations, including patients with a history of bronchitis, emphysema, and current smoking status, can assist in tracking therapy goals for each

patient. Pharmacologic interventions performed for the improvement of symptoms include the use of metered dose inhalers (MDI), oxygen supplementation, beta-agonist steroids, and intravenous steroids. Other factors that can assist in determining the clinical course and likely complications of patients with COPD include exercise tolerance and forced end-expiratory volume in one second (FEV1) pre and post the administration of bronchodilators.

Timely. Timely measures for quality and safety rely on scientific evidence. When determining which treatment leads to delays in the care of COPD, a plan for improvement is needed.

Patient-centered. Evaluation of self-management includes a diary card of symptoms with measures of clinical information such as dyspnea, sputum volume, color, and cough.

Patient participation in the promotion of self-management offers empowerment and improved quality of life by reducing dyspnea, anxiety, depression, sleeplessness, and fatigue (Bentsen et al. 2012).

Equitable. Adaptation to evidence-based practice, as described in diffusion theory, influences clinical behavior in arriving at the skills necessary to manage the complexity of care for all patients (Sanson-Fisher, 2004). Implementation of the best evidence-based practice should improve symptoms outcomes, preventing readmission (Ransom et al., 2008).

Within the structural health care system of the hospital, the process of planning care and gathering data to deliver high-quality care is implemented to achieve the best possible outcomes for all COPD patients and their families.

### Organizational readiness

The impetus to transform care with the determination to decrease the severity of the disease targets the overall education provided to patients with COPD and health care providers that is disease-focused for the prevention of exacerbations and the promotion of improvement of HRQL.

Educational needs focus on treating lungs with medication as prescribed to control inflammation. Oxygen therapy used as prescribed can make patients feel better by relieving respiratory distress and alleviating anxiety from shortness of breath and prolong life.

Leadership commitment to quality involves steering change through organizational structures for the improvement of activity tolerance in COPD patients (Bestall et al., 1999). Inspire and motivate patients with shortness of breath to improve levels of activity with exercise at a pace that conserves energy. A diet with a variety of foods to prevent infections and provide energy to meet individual needs is prescribed.

Improvement initiatives of evidence-based approaches are integrated to engage staff in problem-solving. These include encouragement of smoking cessation, meeting pharmacological needs for the improvement of symptoms, and offering the flu shot to decreased risk of morbidity (NGC).

**Alignment.** Achieving consistency directed at patients' needs through organization goals is directed by health care practitioners with resources at all levels of the organization. The purpose of alignment is to organize resources that support optimal behavior. Recognizing symptoms of acute exacerbations of COPD and making decisions for care involving case managers improve adjustments in therapies and protocols and link with physicians to ensure

follow-up. Supportive evidence-based practice collaboratively generated from various settings including pulmonary rehabilitation, community nursing, and case management informs the development of structural strategies that facilitate better outcomes for COPD patients. Non-physician roles in task completion that ensure standardized practice include questionnaires, protocols, tests, treatments, and frequent follow-up practices.

Integration to bridge traditional intra-organizational boundaries facilitates improved clinical practices of COPD. The changes made within the organization incorporate new ideas (Lukas, 2007). The transformation includes a peer review of guidelines for effective collaboration and continuity of quality care.

### **Definition of terms**

Community-based Care Transitions Program (CCTP) is a Medicare-funded program created by

Section 3025 of the Affordable Care Act. The Central New Jersey Care Transition a program of the CCTP tests models for improving care transitions and reducing readmissions for high-risk Medicare fee-for-service patients. The goals are to improve transitions from the inpatient hospital setting to other care settings and document measurable savings to the Medicare program.

<http://innovation.cms.gov/initiatives/CCTP/index.html>

CHIP: Community Health Integrated Program (for CHF patients only).

The Mary Naylor model uses APNs to educate patients at home through health assessment and coaching on the first visit to teach the patient how to manage their disease (Naylor & Keating, 2008).



Transitional care is time-limited services designed to ensure healthcare continuity across settings to avoid preventable poor outcomes among at-risk populations.

Transitional care model = Three coaches, social workers, two nurses and a pharmacist. Tasks include:

- a. Screen specific diseases
- b. Engage in care for patient and family
- c. Manage signs and symptoms
- d. Collaborate and assure continuity of care
- e. Coordinate care with various disciplines
- f. Maintain relationships
- g. Call patients every week
- h. Assist with medication adherence.

The Coleman model uses social workers, nurses, and coaches to assist patients with taking medication, calling the physician, and identifying personal red flags (Coleman, 2013).

The Patient Health Questionnaire (PHQ-9) helps clinicians in diagnosing depression and observing the response to treatment.

<http://www.integration.samhsa.gov/images/res/PHQ%20-%20Questions.pdf>. The nine items of the PHQ-9 are the diagnostic criteria for major depressive disorder and can help monitor a patient's overall depression severity and the specific symptoms that are or are not improving with treatment. <http://impact-uw.org/tools/phq9.html>.

**Introduction to the clinically focused practice problem**

A leading cause of worldwide morbidity and mortality, COPD implicates functional and medical care resources for individuals, families, health care organizations, and society. Cost affects medical management directly and indirectly affects the loss of work and productivity of individuals. COPD disease and illness cost per person averaged \$1,522 per year (Sullivan et al., 2000).

Factors leading to COPD include cigarette smoking, pollution, climate, respiratory infections, and genetic causes (Hurd, 2000). Further research methods are required for COPD early detection. Average charges per day of chronic obstructive pulmonary disease cases without complications and comorbidities in two hospitals are considered. The first hospital averaged \$5,710 and the second averaged \$7,953, while the average statewide charges per day were \$9,064 (New Jersey Hospital Association, 2014). Risk adjustments in reported measures are necessary for demographics of the population served. Hospitalization for severe COPD patients averaged \$7,100 (Elixhauser & Podulka, 2011).

The disease processes of patients with COPD rely on medical management to improve health-related quality of life in chronically ill patients. The goal of optimizing patient outcomes is to decrease waste and expand access to quality health care (Kahn et al., 2010). Economic burden has led policy makers to consider the epidemiology, nature of resources for health care cost of illness, environment and strategies for health improvement (Sullivan, et. al., 2000). The dominant influence contributing to the high cost of COPD is hospitalization, which is seen more commonly as the disease progresses. Research and treatments could reduce overall hospitalization, considerably decreasing the overall burden of the disease (Sullivan, et al., 2000).

COPD morbidity and mortality is increasing worldwide and is predicted to rank as the third leading cause of death by 2020 (Lamprecht et al., 2011). Little is known in terms of early detection and significance for airway limitations that may develop from inhaling smoke (Croxtan et al., 2002). Prevention of COPD exacerbations is consistent with drug treatments, oxygen supplement for hypoxemia, and supportive care (Croxtan et al., 2003).

**The scope of the problem.** COPD impairs activity tolerance and quality of life (Wijkstra et al., 1994). Pathology of COPD includes changes in the central and peripheral airways, lung tissue, and pulmonary blood vessels. Manifestations of COPD include excessive mucous production, ciliary dysfunction, airflow limitation, hyperinflation, impaired gas exchange, pulmonary hypertension, and systemic effects (Celli et al., 2004). The global initiative for chronic obstructive lung disease (GOLD) predictive symptomatology includes shortness of breath or dyspnea, a cough that is persistent, and sputum production (NGC).

Economic costs for COPD in the United States amount to approximately \$14 billion a year (Hurd, 2000). Self-management follow-up support reduces hospital admissions by 39.8%, emergency room visits by 41.0%, and primary care provider office visits by 57.1% (Fromer, 2010).

The World Health Organization (WHO) defines COPD as a “chronic obstruction of lung airflow that is not fully reversible,” no longer incorporating chronic bronchitis or emphysema (Welch et al., 2013). The development of advanced imaging technology includes computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET) scans. These are of great importance with respect to identification of lung disease (Croxtan et al., 2002).

**The contributing factors/current practice.** Some contributing factors to our economic burden of COPD and failing healthcare system include the decrease in out-of-pocket payments as a result of Medicare and Medicaid in 1966, private insurance growth and new programs for health insurance (Folland, et. al., 2013). As a result of the creation of Medicare and Medicaid in 1966, private insurance growth, and new programs for health insurance complement our current practice (Folland et al., 2013). The social network, knowledge and access to resources are necessary for the creation of new organizations (Scott & Davis, 2007). The emphasis in managed care is on cost containment and reduction of overuse of unnecessary service. Medicaid managed care programs will continue until the inequality is eliminated, which some view as a threat to the stability of Medicare (Folland et al., 2013). The overall process of health care includes the reduction of cost for treatments to save money for clients and reduce out-of-pocket payments.

Costly expenditures for recently diagnosed COPD patients include prescriptions, primary care providers, labs, and hospital services. The greatest outpatient cost required for patients with emphysema includes home oxygen (Sullivan et al., 2000). Education and pulmonary rehabilitation programs for COPD patients have been beneficial and economically important, statistically improving dyspnea, fatigue, and emotional health (Sullivan et al., 2000).

The cost-effectiveness of smoking cessation is projected to be an exceptional medical value. With the exception of the clean air act and banning smoking in public places, studies show that regulation of smoking may be somewhat unsuccessful (Folland et al., 2013).

The lack of controlled studies for lung volume reduction surgery (LVRS) related to effectiveness and well-being is under consideration for qualification for Medicare reimbursement. Studies suggest that costs for LVRS will fall as procedures achieve proficiency from health care providers (Sullivan et al., 2000). Expensive lung transplants also have high

complication rates and require immunosuppression treatments but are useful for severe emphysema.

Costly exacerbations of COPD and acute exacerbation of chronic bronchitis (AECB) are due to therapeutic failure, hospitalization, and associated relapse. Treatment strategies include appropriate antibiotics and a brief oral steroid prescription to reduce illness and risk of death and decrease the economic burden of the chronic disease (Miravittles et al., 2002). Other pharmacological treatments include adding inhaled anti-inflammatory medication to  $\beta$ -2 agonists to improve forced expiratory volume in one second (FEV1). Incremental savings amount to \$201 per 10% and \$5 per day free of symptoms (Sullivan et al., 2000). Ipratropium bromide showed financial benefits, fewer complications, and less cost when used compared to theophylline (Sullivan et al., 2000).

The cost of treatment failure for AECB is above three times the average cost of AECB (Miravittles et al., 2002). The increase in the length of hospital stay from an average of eight days to fifteen days avoids treatment failure, and exacerbations would increase by only 50 percent (Miravittles et al., 2002). Prevention of relapse could save resources depending on the disease severity.

Cigarette smoking contributes to high death rates per capita, and extends to disease categories such as emphysema and heart disease (Folland et al., 2013). The medical and social factors for smoking include 89% likelihood that those who continue to smoke have a psychological illness. The nature of addiction is thought to be uncertain (Folland et.al. 2013).

The demographics and clinical characteristics of patient studies conclude that hospitalization results in the highest distribution cost for COPD and AECB. A decrease in

treatment failure may prove to be economically profitable. Pulmonary rehabilitation and education programs implemented have led to significant improvement in patients, decreasing exacerbations and subsequently reducing hospitalizations. More comprehensive studies of pulmonary rehabilitation on diverse groups are necessary due to limitations in the design of previous research.

Economically, smoking also carries the burden of high cost and the development of health problems. Intervention and education counseling on smoking cessation may offset the development of chronic lung disease, reducing the resources needed to improve the quality of the patient's life.

Non-smokers comprise a considerable number of patients with COPD, and their cases often go undiagnosed. Symptoms can occur gradually over time and are not always associated with COPD by the patient until acute. Predisposing factors other than smoking include increasing age, prior asthma diagnosis, occupational exposure, childhood respiratory illness, body mass index alterations, female gender, and lower education levels (Lamprecht et al., 2011). The severity score of COPD based on pulmonary status does not require pulmonary function measurement (Eisner et al., 2005).

### **Description of the project**

Objectives are to reduce recurrent admissions of patients discharged with the diagnosis of chronic obstructive pulmonary disease and address transitional care details. (See Appendix F, p. 84.)

Specific objectives for the project experience include the following:

1. Conduct extensive evidence-based practice literature review on transitional care for patients with COPD for the prevention of hospital readmission.

2. Meet with preceptor to arrange time to spend on clinical activities.
3. Attend meetings with case managers, directors of care coordinator of the Health Group, Visiting Nurse Association, health coaches, and palliative care.
4. Conduct interviews with patients, case managers, physicians, respiratory therapists, nurses, and pharmacists to address transitional details.
5. Work on goals that close the gaps between the hospital and next site of care for the promotion of efficient outcomes for adults with multiple chronic conditions.

**Who will be the recipient of the project activity?** At a local medical center, the process of planning care and gathering data to deliver high-quality care was implemented to achieve the best possible outcomes for all COPD patients and their families. A presentation of transitional care included Community Health Integrated Program (CHIP), disease management, medical adherence, and community and clinical services. Transitional care models at the medical center included statistics and geographical information on client population. The employment status of a majority of patients is below the poverty level. This study includes hospital readmissions exclusively for patients with chronic obstructive pulmonary disease (COPD). Comorbidities include end-stage renal disease (ESRD), congestive heart failure (CHF), chronic diseases, and psychosocial issues identified with the Patient Health Questionnaire-9 (PHQ-9) screening tool.

**Expected result of the successful project (Project outcomes).** The patients are more efficiently managed to ensure that they are taking their medications, following a prescribed diet, and independently scheduling the first appointment with their primary care physician. Patients' goals are evaluated to increase their satisfaction and reduce readmissions.

The project includes participation in "Project ACHIEVE" (Achieving Patient-Centered Care and Optimized Health in Care Transitions by Evaluating the Value of Evidence), a

comprehensive national study evaluating transitional care. Dr. Mary Naylor and participants from the University of Pennsylvania worked with the facility for the purpose of gathering information, validating self-reporting, and assessing implementation of transition care services. The purpose was to seek feedback, study protocols and processes, identify barriers and facilitators, and evaluate the impact of hospital contextual factors such as leadership, commitment, teamwork structure, physician, and staffing engagement. The meeting held with leadership, management, the transitional care team, stakeholders, post-acute community partners, patients, and family caregivers verified patient satisfaction and positive outcomes of “ACHIEVE.”

**Purpose of the project.** The purpose of this project is to implement a program for educating staff to evaluate high-risk COPD patients to avoid readmission. A group of 12 patients was followed to carefully assess them for potential high-risk factors including psychosocial issues and end-of-life trajectories. The goal was involvement with the patients to ensure that they would not require readmission within 30 days of discharge.

**Aim of the project.** The aim of the project is to build patient and family involvement in the discussion about the entire duration of the health care process (Ransom et al., 2008). Another aim is to improve consumer trust in and communication with the health care team to improve patient safety. Given that patient-centered care reduces the rate of medical error, focusing holistically on the patient to provide them with the best evidence-based practices will be emphasized (Ransom, 2008). Individuals suffer unnecessarily due to the exclusion of patient information or lack of involvement (CAPS, 2014). Therefore, consumers will be encouraged to communicate more openly with their health care providers.



The aim of the proposed improvement includes the models and management approach. The primary motivator of this approach for health care providers and administrators is to cope with mishaps in clinical practice (Reason, 2000). Recognition from an administrative standpoint that human imperfection exists should be, and I believe is, factored into patients' agreement for treatment or bill of rights just as it is discussed when patients are signing consents for procedures. An administrative systems approach to preparing patients for their safety would be to consider changing work conditions to avert errors. Further training or perhaps quality-oriented precepting while partnering with the patient may be required (Boan & Funderburk, 2003). Transparency in communication with a focus on quality and safety improves performance. Disclosing issues may shift accountability for perhaps the prevention of malpractice suits (Reinerstein et al., 2008). The goal is to decrease variation through adherence to evidence-based standards, and quality measures have extended to include physician services. S+P=O—or the Structure to provide resources to patients, Process measures interactions which equal Outcome—is the process that helps identify contributions to the quality of care (Ransom et al., 2008).

The specific (SMART) aim or goals of the proposed improvement project contribute to smoking cessation:

(S) Systematically identify and document all tobacco users.

(M) Measure the onset and duration of smoking history.

(A) Advise smoker to quit.

(R) Realistic goals with counseling to quit smoking.

(T) Telephone and schedule for follow-up.

In addition, the importance of vaccination will be discussed.

*Anticipated steps to successful implementation of the project.*

1. Goals of evidence-based practice were to address gaps in care and promote effective “handoffs.” Concerns specific to the hospital and skilled nursing facility for the transition included timely issues. Health information technology (HIT) not available and use of “warm handoffs” during the report of medications issued or formulary drugs that may not be available impact transitions.
2. Report the root cause of poor outcomes focusing on longer-term, positive outcomes.
3. Toolkits used by professionals in transitional care and reducing length of stay (LOS) kits to identify gap analysis include:

- LACE tool: (See Appendix D, p. 79.)

L: Length of hospital stay

A: Acuity on admission

C: Comorbidity or the Charlson comorbidity index (Wang, et al., 2014).

E: Emergency department visits

4. Medication Management:

- Monitor medication and patient compliance to avoid adverse effects.
- Reconcile medications to avoid omissions or duplications, dosage errors, or drug interactions.
- Admission, inpatient, and discharge medication reconciliation. Handoff included.

- Pharmpac, now known as ExactCare, calls for a referral for a patient to distribute labeled medications via packet for easier medication administration and reduction of medical error.
  - Improvements include home visits by the social worker or others with different skill sets. Pharmacists write prescription effects and how to take medication and vital signs.
  - COPD patients are managed via email, phone calls, and home visits.
  - Education includes medication rational, adverse reactions, interactions, how to administer, monitor compliance, duration. With pharmacological compliance, there is a demonstrated decline in 30-day readmission.
5. Identify potential problems and educate patients and the consumer. Home visit: target patients that are high risk utilizing comprehensive assessment, psychosocial, ADLs, falls risk.
  6. PHQ-9 depression scale is also incorporated. (See Appendix E, p. 82.)
  7. The use of mobile integrated services; usually paramedics also evaluate home patient status.
  8. Reducing readmission end-of-life trajectories using screening questions requested when there are one or more chronic illnesses or decreased function, questionable social and emotional support, and frequent hospital admissions:
    - Is there a desire to avoid life-sustaining treatment?
    - Residential quarters of a skilled nursing facility (SNF)?
    - Suspected death within a year?
    - An advance in chronic disease, sudden acute severe illness or poor prognosis?

- Decreased function, at least two admissions in the last year, inadequate support?
- How to understand what is relevant to the patient, values, beliefs, goals?

Solution: community agencies that go to homes and monitor preventable adverse effects such as falls, altered vital signs, confusion. For example, a side effect of Naproxen is GI bleed. Patients prone to GI bleed or recently discharged from the hospital with GI bleed should not use this medication.

### **Significance of the project for nursing**

The professional nurse will utilize sufficient experience to manage patients with chronic disease, increase patient involvement in treatment, and promote the adaptation of healthy behaviors that improve the quality of life. Collaboration with the health care team to formulate solutions and decrease the length of hospital stay are goals of the professional nurse (Lu et al., 2007). The significance of the nursing role is to reduce medical cost and promote patient satisfaction with care.

Nurses advocate for patients with moral, ethical, and professional obligations during the research (Welch et al., 2013). Supportive evidence-based practice collaboratively generated from various settings, including community nursing and case management, offers explanations to provide the development of structural strategies that facilitate improved outcomes for COPD patients.

Early comprehensive planning and guidance toward anticipatory support offers to address concerns promoting self-management abilities (Kirkpatrick et al., 2012). Promotion of self-management and improved quality of life reduces dyspnea, anxiety, depression, sleeplessness,

and fatigue (Bentsen et al., 2012). Nurse leadership among health care professionals improves the overall quality of life in patients with chronic disorders (Bentsen et al., 2012).

### **Literature Review**

A review of the literature was initiated using the search engine of Google Scholar and CINAHL. The Google Scholar database was searched with the following question: “What are the issues for the professional nurse practitioner on how to sufficiently use evidence-based practice to manage patients with chronic obstructive pulmonary disease?” Keywords used were “research,” “evidence-based practice,” and “chronic obstructive pulmonary disease (COPD).” CINAHL produced 2,312 journal articles utilizing these keywords.

Criteria for the articles selected for inclusion in the literature review are as follows: (1) measuring the effects of therapies for patients with COPD exacerbations, (2) the impact of preventing exacerbations, and (3) exacerbations and data reported on COPD evidence-based study application. Thirty-seven journal articles were reviewed. Practice guidelines, meta-analyses, or systematic reviews based on evidence related to the PICO question were also eligible for inclusion in the review. The goal of the literature review with regard to patients who have COPD exacerbations is to determine the supported evidence-based practice leading to the best outcomes for improved airflow limitations. The studies’ similarities include patients with COPD and evidence-based practice to determine beneficial effects of predictive outcome and treatment measures to improve clinical outcomes to prevent readmissions and transfer knowledge into practice.

**Explanation of the theoretical foundation for the project**

The theoretical framework of the Mary Naylor model uses APNs to educate patients at home utilizing assessment and coaching on the first visit to teach the patient how to manage their disease (Naylor & Keating, 2008). Use of the Mary Naylor model promotes qualifications for the role of transitional nurses to include APNs, possibly baccalaureate prepared. The duration of intervention is 1 to 3 months with an average cost per patient of \$982 (Naylor & Keating, 2008).

The Coleman model uses social workers, nurses, or coaches to assist patients with taking medication, call the physician, and identify red flags (Coleman, 2013). The four pillars of care include (1) medication management, (2) a patient-centered health record, (3) primary care physician/specialist follow-up, and (4) knowledge of red flags. The knowledge of flags indicates whether the severity of the condition is worsening. Green: No intervention needed; Yellow: Call the doctor; Red: Call 911. COPD Red Flags from the American Lung Association were reviewed for COPD management. Significant measures include lung function measurements, weight, forced expiratory volume in one second (FEV1) and percentage predicted for (FEV1), and oxygen saturation. General lung care includes vaccines, smoking status, exercise plan, and diet plan. Medications were reviewed for COPD including the type, name, how much to take and when to take it. Smoking cessation plan include the following: (1) advise firmly to stop, (2) assess readiness to quit, (3) encourage to pick a quit date, (4) assist with program and resources, and (5) discuss meds if appropriate. The freedom from smoking website at [www.ffsonline.org](http://www.ffsonline.org) and Lung Helpline 1-800-Lung USA are resources for smoking cessation assistance. Interventions in the Coleman model transition into a coaching role.

**Critique of empirical studies related to the central concept of the project**

A prospective cohort study sampled 135 patients hospitalized for AECOPD. Predictors of mortality rate after discharge of patients with COPD are found to be associated with functional lung capacity (Almagro et al., 2002). Confirmed airflow obstruction is rated by post-bronchodilator forced expiratory volume/forced vital capacity ratio (FEV1/FVC ratio) of  $< 0.70$  (Almagro et al., 2002).

Between 2000 and 2011, an evaluation of the benefits of COPD self-management and interventions on patient quality of life presented with evidence of changes in the manner of managing and handling the disease process. The quality of life score differences and pulmonary function warranted future studies to related self-management (Bentsen et al., 2012).

One hundred patients were recruited from an outpatient pulmonary rehabilitation program with COPD. Assessment of mood state and daily activity were evaluated and complemented (FEV1) forced expiratory volume in 1 second COPD severity (Bestall et al., 1999). The decline in performance of activities of daily living (ADL) was indicated by differences associated with anxiety and depression. A decline in ADLs significantly impacts COPD patients, their families, and society. The Patient Health Questionnaire-9 (PHQ-9), a nine-item screening tool, is useful in the diagnosis and monitoring of response to depression (Maurer et al., 2009). A collaborative review related to COPD of a qualitative systematic review protocol sampled reference work lists from titles and abstracts including studies with methodological robustness and critical appraisal tools. Findings included impaired activity resulting from decreased function and associated stigma and loneliness associated with COPD requiring the need for emotional and educational support (Kirkpatrick et al., 2012). Adaptation to change utilizes Rogers's theory and evidence-

based practice described in diffusion theory that influences the complexity of care for all patients (Sanson-Fisher, 2004).

Measurable aspects to facilitate patient safety through the observation of organized culture in the health care environment contribute to improved nursing performance and quality outcomes for patients (Boan & Funderburk, 2003). According to consumers advancing patient safety the partnership between consumer and provider creates a safe health care system. A survey in January 2013 showed an improvement in the promotion of quality and patient safety. The focus was on organizational change using a system approach to error analysis with a blame-free process (Connor et al., 2013). A task force conducted a literature search for quality improvement and critical care indicating that the delivery of quality improvement (QI) requires participation of interdisciplinary team commitment (Curtis et al., 2006). Leadership for priority conditions is needed to improve a safe, efficient system (Kohn et al., 2001). An empirical study of patients' unitary concept of quality care is difficult to consider due to the multifactorial dimensions of defined quality care (Donabedian, 2005).

COPD medical management with regard to end-of-life considerations and unnecessary hospital readmissions for progressively worsening advanced symptoms requires planning. Ethical and palliative care are clinical features that require advanced care planning in existing literature (Celli et al., 2004).

Short-term clinical trials of treatments for patients with moderate to severe COPD were performed in a multicenter clinic research network with recommendations to validate indications for clinical practice (Croxtton et al., 2002). The National Heart, Lung, and Blood Institute (NHLBI) evaluated knowledge and identified gaps affecting the advancement of COPD research requiring further evaluation for treatment improvement (Croxtton et al., 2003).



A survey method of a random sample selection used statistical analysis software to generate a reliable tool. The tool investigated health and outcomes of COPD status and function. The tool analyzes overall pulmonary status, steroid use and other medication, frequency of hospitalizations, prior intubations, and home oxygen (Eisner et al., 2005).

Examination of variables of readmission for patients with COPD using a statistical brief of admissions in 2003 and 2004 provided opportunities to target interventions for the prevention of readmissions (Elixhauser & Podulka, 2011). Evaluation of collaborative care for patients' individual needs with ongoing regimens to improve their quality of life includes planned visits, care coordination, and empowerment for improved outcomes (Fromer, 2010).

Econometric estimates of the effects of smoking advertisements and the nature of addiction are contributing factors to the economic burden of COPD. Managed care cost containment contributes to the high death rate per capita (Folland et al., 2013). A summary of the literature on the cost-effectiveness of smoking cessation programs and pharmacologic and non-pharmacologic treatment was beneficial and economically necessary (Sullivan et al., 2000). Suzanne Hurd (2000) obtained information from vital statistics, health interview surveys, hospital records, national publications, and the World Health Organization (WHO) for factors leading to COPD. The impact of COPD on lung health worldwide for epidemiology and incidence included cigarette smoking, pollution, climate, respiratory infections, and genetic causes (Hurd, 2000). Lamprecht and associates (2011) analyzed data from 14 countries that participated in the international population-based Burden of Obstructive Lung Disease (BOLD) study. The results show that non-smokers accounted for a significant proportion of patients with COPD.

The American Thoracic Society (ATS) health policy committee, including pulmonary authorities, critical care experts, sleep medicine hospital personnel, and outpatient administration, utilized Medline and Google Scholar search engines to evaluate pay for performance. Results included increased costs and poor outcomes (Kahn et al., 2010). Lessons learned include that quality of life in chronically ill patients relies on therapies with the goal of optimizing outcomes and decreasing waste.

A case management program was developed to evaluate the effectiveness of the management of COPD patients using a quasi-experimental study on a group of 50 patients (Lu et al., 2007). The study concluded a practical approach to COPD patient management; however, it recommended future studies using increased population with random sampling size.

A commitment to improving clinical practices of COPD, the Pursuing Perfection initiative applied longitudinal comparative case studies using mixed methods evaluation design based on semi-structured interviews and documented interviews to promote high-quality care (Lukas, 2007). In a study to stimulate understanding, patients are required to teach back in their words what is perceived in order to correct any errors (Kornburger et al., 2013). An increase in knowledge develops as the method is used in blocks at a time for medications. A study sample of patients 65 years or older and excluding cognitively impaired individuals concluded that the teach-back method is an effective method used to educate and assess learning (White et al., 2013).

A prospective study investigated individuals older than age 40 to determine the direct cost of the management of exacerbations of COPD, emphysema, and bronchitis in an ambulatory setting. Costly exacerbations are due to therapeutic failure, hospitalization, and associated relapse (Miravittles et al., 2002). Implementation of the best evidence-based practice should

improve symptoms outcomes, preventing readmission (Ransom et al., 2000). Scientific testing on patients hospitalized for 2-day evaluation included forced expiratory volume in one second (FEV1) predictive and exercise capacity. Patients were randomly assigned to a twelve week home rehabilitation program or a control group. After 12 weeks, the group was tested for quality of life and given spirometry and ergometer tests. This study showed improvement in patients after rehabilitation at home (Wijkstra et al., 1994).

Patterns of survival among a sample of community-based organizations (CBOs) were studied between 1990 and 2004. The study determined that the survival advantages of network affiliation are widely facilitated by resources (Walker & McCarthy, 2010).

Limited research exists in methods required for early detection of COPD and self-management interventions. Lack of effective “hand-offs” and fragmented home care initiatives allow for gaps in quality care for low-income groups. A valid assessment tool, for example the LACE tool or the PHQ-9 questionnaire, can identify predicted readmission rate for at-risk patients for the implementation of further follow-up care after discharge. Patient-centered, family-oriented approaches to care at the end of life help advance care planning to prevent unnecessary readmissions. Noncompliance with medication, cigarette smoking, debilitating comorbidities, non-adherence to the follow-up visit to PMP, and low literacy level increase readmission rates.

Positive outcomes of the study offered transferable knowledge for developing new practice integration of healthy behaviors. Awareness about the patient’s disease and improvements possible with case management encourages patient involvement. Patient-focused education in the hospital for COPD and comorbidities with the use of evidence-based practice improves symptoms outcomes, preventing readmission. Organized coordination of care for cost

containment and reduction of overuse of unnecessary service reduces expenditures. Planned follow-up home visits with patient consent improve community-based organization involvement. Leadership that involves steering change through organizational structures for the improvement of activity tolerance in COPD patients requires a network of supportive health care team members.

In summary, the evidence suggests improving outcomes for patients with COPD requires investment in transitional care pharmacist and information technology to decrease the rate of discrepancies, reducing frequent readmission for patients with COPD. Patients who are provided with resources about lung health programs that inspire and motivate them can improve levels of energy with exercise at a pace that conserves energy. The promotion of family involvement and maintaining a healthy diet during transitional care can prevent readmissions.

### **Methodology for the Project**

In May 2014, this author presented to a local home care agency the possibility of working with the transitional care team. After presentation to the transitional care nurse practitioner who agreed to precepting, permission was obtained from the chief nursing officer at a local medical center.

**In the practice setting.** After providing the appropriate documentation, I began residency with the transitional care team. The practice settings included the local medical center, patient home visits, and a homeless shelter. In addition the author attended multiple webinars and seminars.

**Practice site person willing to serve on Scholarly Project Committee and how this person is qualified to support the completion of the project.** I obtained a preceptor agreement from the transitional care nurse trained under the Mary Naylor Transitional Care Model. The objectives are to reduce recurrent admissions of patient discharged with diagnosed COPD and address transitional care details. The author undertook an extensive evidence-based practice literature review on transitional care for patients with COPD for the prevention of hospital readmission. My mentor arranged up to three days per week to spend on clinical activities. Attending meetings with case managers, directors of care coordinator of the Health Group, Visiting Nurse Association, and referral to palliative care are the required roles of my preceptor. My preceptor also conducts interviews with patients, case managers, physicians, respiratory therapists, nurses, and pharmacists to address transitional details.

**At Seton Hall University.** I completed paperwork and contracted to meet with the project chair for proposal via e-mail and to discuss problems, interventions comparator and

outcome (PICO) questions. We discussed a reference timeline for course objectives in collaboration with faculty co-chair.

Project topics discussed include COPD, patients with acute exacerbations, length of stay in hospitals, and the transition of care from an acute care facility to a sub-acute care setting, rehabilitation setting or home. Demographics included clinical diagnosis, potential comorbidities, patient medications and possible polypharmacy, support systems, patients over the age of 40, smoking history, and the exclusion of patients with psychiatric issues.

**Risks and benefits.** Signed informed consent was not required because there was no perceived risk to the patients, and there will be no release of identifying data. Voluntary consent forms were obtained from patients willing to participate in filming by hospital personnel about patient satisfaction with the transitional care program. Patients were recruited between September 12, 2014, and May 9, 2015. Improved patient outcomes related to transitional care are significant to the study.

### **Phases of the project**

I acquire information to assess patient outcomes in the following ways:

- (1) Attending clinical hours at the medical center
- (2) Participating in webinars and presentations
- (3) Visiting patients' homes
- (4) Following up with morning report on rounds attended by physicians, nurses, case managers, social workers, dietitians, transitional nurses, and transitional pharmacists.
- (5) Attending ethics committee meetings with the palliative care clinical nurse specialist and ethics committee members.

Phase I focused on needs assessment. Phase II focused on obtaining support from stakeholders. Phase III was the initial implementation steps of the process of transitional care. Phase IV is the ongoing implementation process. Phase V concentrated on the evaluation process. Tools in the implementation phase, used in conjunction with patient goals and collaboration with the health care team, provide an outcome impact measurable by readmission rates and patient satisfaction.

**Phase I – Needs assessment process.** Needs assessment was obtained at the local medical center, sitting in on webinars, attending presentations, and visiting patients' homes. Follow-up consisted of morning reports attended by physicians, nurses, case managers, social workers, dietitians, transitional care nurses, and transitional pharmacists. I was able to acquire information to assess patient needs during the ethics committee meeting with the committee chair and hospice clinical nurse specialist.

Completion of strengths, weaknesses, opportunities, and threats, the SWOT analysis (Kellogg, 2004), put into further perspective all of the tasks and functions needed to facilitate successful transitional care. (See SWOT analysis p. 76.) The transitional care effort of health care practitioners for patients is intended to accommodate condition and needs during acute or chronic episodes of illness. The patients' home safe and sound worksheet is an initiative used at the facility to assess patient needs using the following:

1. Patient/medical record
2. Length of stay (LOS)
3. Date of discharge
4. Number of comorbidities
5. Number of ER visits

6. Acuity of admission
7. Seen at home
8. Number of phone calls
9. Number of home visits done
10. Number of days remained at home
11. Patient-refused home visits

Data points measured to inform the list of parameters above include how long after inpatient LOS and time of readmit: Less than 7 days, 8-15 days, and 16-30 days. Discharge Disposition: Discharged to home; discharged to skilled nursing center; discharged to home health service; discharged to a short-term hospital; discharged to intermediate care center; expired; left against medical advice.

**Objectives:** Visit the patient in the hospital. Visit the patient at home within 24 hours after discharge. Go along with the patient to the first doctor visit. Assist clinician alliance and communication with patient and family with on-call services seven days a week.

A behavioral health nurse will follow up with patients when PHQ-9 scale is high for a home behavioral recommendation. The patient does not always comply with behavioral health advice follow-up. The psychiatric nurse will follow up with patients at home.

A transitional care pharmacist was hired in January 2015 to counsel patients prior to discharge on medications. The transitional care pharmacist is not always informed when patients are discharged home from the hospital. The pharmacist is to be contacted by the nurse when a patient is discharged to discuss medication reconciliation list.



The author attended a nurse management meeting and discussed readmissions for the first quarter of 2014, January to April. The facility number of live discharges was 40. Readmissions were 12 within 30 days. The readmission rate of 30%, ranked 49% out of 62 facilities. All of New Jersey readmission rate is 23.34% were reported by the transitional care nurse practitioner. This year, penalties for COPD patient readmissions in affect. Financial impact on hospital according to CMS, Centers for Medicare & Medicaid Services to withhold up to 1% of all inpatient Medicare payments starting in federal fiscal year (FFY) 2013, up to 2 % of payments in FFY 2014 and up to 3% in FFY 2015 and thereafter. Focus efforts are to include COPD.

**Phase II – Obtaining support from stakeholders.** Ninety-four percent of patients come back to the facility from nearby towns. Community grants enabled funds for initial start-up and training. Specialty care transport units (SCTU) require mandatory training for community health for education, and COPD. Other possibilities for securing funds to decrease readmission rates were discussed. Goal with grant funding is for a return on investment (ROI) and to avoid penalties.

The goal of reduction of emergency room utilization is to hire community case management or trained personnel to make follow-up calls. Barriers for follow-up calls include inaccurate addresses, phone numbers, and medication reconciliation data. Data entry errors are common.

Funding and help are necessary for patients being seen to benefit from the care transitions program and to be successful with their health care. The transitional health care team considered follow-up visits from retired nurses and retired social workers, paid upon completion of the visit to monitor patients with CHIP on the following:

- diet
- resources
- medication
- and provide weighing scales in good working condition.

Special funding provides support to improve care and ensure that patients discharged home get well at home. Several agencies work together to participate in intensive case management to assist patients to stay on their medications, follow a prescribed diet, and schedule doctor appointments.

The facility transitional care team includes:

1. Community-based Care Transitions Program (CCTP)
2. Complete Health Improvement Program (CHIP)
3. an advance practice nurse (APN) specific to those whose age is under 60
4. a pharmacist interventionist

In addition, the facility is planning to hire a dietitian. Supplements such as Ensure Plus are marketed to encourage the APN/Primary Medical Doctor (PMD) to order supplements for insurance coverage purposes and to improve the overall nutritional status of patients recovering from their hospital stay. Prepared food is given to patients discharged home from the hospital for up to five days to give patients time to recover prior to shopping for food or cooking.

The use of electronic referrals obtained for perspective clients is provided to CCTP coaches for follow-up.

At the initial visit a card clarifying the reason for the visit and identifying services is offered. An educational booklet which utilizes the American Lung Association's red, green, and

yellow “traffic light” zone system, is also left with the patient,

<http://www.lung.org/associations/states/colorado/assets/pdfs/copd-action-plan.pdf>

- The green zone indicates patients are doing well with usual activity level; a cough and phlegm are typically not interfering with sleep or appetite. Patients are advised to continue taking daily medications as prescribed, continue with regular activities and diet, and avoid inhaling irritants including smoke.
- The yellow zone specifies a respiratory issue including shortness of breath and reduced energy, increasing phlegm production requiring greater use of inhalers, with little relief from medication, feeling flu-like symptoms interfering with sleep and appetite. Patients are advised to continue medication, use inhalers and start on oral corticosteroids, avoid inhaled irritants, and call the primary care practitioner if there is no relief.
- The red zone indicates that a patient is in need of urgent care. Symptoms include severe, progressively worsening shortness of breath impeding activity and sleep causing fever, chills, confusion drowsiness, chest pain, and/or coughing up blood. Patients are advised to call 911 and seek medical care.

The patient should have the dispatchers’ telephone number and contact of the Transitional Care Team for questions and concerns. Additionally, on the first visit the patient is educated using informative pamphlets that are being handed out. Assessment of patient weight, blood pressure, and blood glucose and instructed that they be recorded. Telemonitoring utilized with 9 screening questions used as with CHIP/EMS telephone calls. CHF booklets for educational purposes and learning to live with COPD booklets can be given out to patients in Spanish and English for consistency in education. Calling card information contains Red,

Yellow, Green logo with “Any questions, please contact the transitional care team” and with contact information for the transitional care team on the booklet.

Leadership involves the use of a valid assessment tool to identify predicted readmission rate for at-risk patients for the implementation of further follow-up care after discharge. (See LACE tool, p. 79.)

The addition of a transitional care pharmacist factored into the budget and a recent grant have allowed for further productive transitional care management of multiple patients seen.

### **Phase III – Initial implementation steps**

*Description of the transitional health care team.* I attended the “Quality Insights Renal Network Annual Meeting.” At this meeting, my preceptor and the chief of the nursing department discussed a presentation of transitional care. Community and clinical services transitional care models included statistics and demographic information on client population. Employment status of patients is below the poverty level. Hospital readmissions include patients with chronic diseases, renal failure/end stage renal disease, CHF, and COPD. There are also psychosocial issues for patients. The Affordable Care Act and Centers for Medicare and Medicaid Service (CMS, 2014) added a payment adjustment factor for COPD in 2015 for hospital readmissions within 30 days.

### **Phase IV – Ongoing implementation process**

*Reducing Readmission End-of-Life Trajectories.* The author attended a seminar for the legal and regulatory framework of the Health Care Proxy (HCP) Law and life-sustaining treatment by a guardian for disabled, Surrogate Court Procedure Act (2005) includes (MOLST) for advanced care planning. Alternate forms for non-hospital advance directives include do not

resuscitate (DNR), do not intubate (DNI) or allow natural death (AND), and MOLST which all direct the patient's wishes for life sustaining treatment. The Family Health Care Decisions Act (FHCDA) regulates provisions for surrogates for advance directives

<http://wnylc.com/health/entry/142/>. Hospitals and nursing homes require that advance directives, health care proxies, living wills, and DNR/DNI/AND records be in patients' medical records.

Patient treatment decisions for end-of-life care with regard to CPR, are required by hospital and nursing homes to ensure health care proxy. Health care providers educate family and community on advance care directives to allow patients die with dignity. Health care practitioners instructed to provide information on MOLST to community members with material on Medical Orders for Life-Sustaining Treatment, a document from the Department of Health (DOH), are kept by patient and copy to remain with physician.

In New Jersey, practitioner orders for life sustaining treatment (POLST) are used. The Institute of Medicine (IOM, 2014) report "Dying in America" identifies gaps in care near the end

of life (Bomba & Orem, 2015). Attention is needed from stakeholder groups (Bomba, 2014).

Patricia Bomba, M. D. discussed high national priorities in five key areas:

1. Patient-centered, family-oriented approach to care near the end of life
2. Clinician to advance patient care planning communication
3. Professional education and development
4. Policies and payment systems
5. Public education and engagement in discussions about how Americans die (ventilator, restrained, alone or isolated) versus how Americans wish to die (with friends and family and without advanced life support).

Ongoing implementation at the facility included honoring individual care treatments, a continuous process, for a health-illness continuum and providing palliative care to allow health care providers to understand how to shift the culture from more treatment to the right type of treatment. Advanced care planning with a primary issue for the wellness initiative advocates for health care members and the community and reduces readmissions. It is important to involve younger people in this process. Who speaks for the family member? Specific times in the life cycles are used to trigger goals (i.e. during physical exams).

The discussions occur during chronic disease or functional decline. Patients with six months to live benefit from practitioner orders for life sustaining treatment (POLST). Patients consider hospice, advance directives, health care proxy, living will or other power of attorney, do not resuscitate, do not intubate, or allow natural death if prognosis becomes poor. Practitioner orders for life sustaining treatment (POLST) is honored by emergency medical services (EMS),

and allows the patient together with the primary care physician or nurse practitioner to make decisions for their health care goals <http://www.compassionandsupport.org/> . The Institute of Medicine reported no improvement in advance directive outcomes (IOM, 2014).

The POLST procedure is as follows: conversations, teaching and storytelling, goals for care, options, benefits, and burdens. Shared decision making is between primary care provider and patient to be sure that all are well informed and review and revise. For ongoing early

advanced care planning; patients need behavioral readiness. Practitioners measure stages of improvement and teach patients about advance directives.

Ongoing screening questions were used when there are one or more chronic illnesses or decreased function, questionable social or emotional support, and frequent hospital admissions during morning rounds.

- Is there a desire to avoid life-sustaining treatment?
- Residential quarters of a skilled nursing facility (SNF)?
- Suspected death within a year?
- Advance in chronic disease, sudden acute severe illness or poor prognosis?
- Decreased function, at least two admissions in last year, inadequate support?

Ongoing Solutions included:

- Home visits by the social worker or others with different skill sets. Identify potential problems and educate patients and the consumer.
- Target patients that are high risk. Utilize comprehensive assessment, psychosocial assessment, ADLs, falls risk. Community-based organizations (CBOs) connect the home to health care.

Education: Medication Rationale, Adverse Reactions, Interactions. Collaborative information and goals on transitioning medication to the next level for patients in the health system are implemented at the facility. An accurate medication history is obtained by monitoring medication reconciliation implementation. Pharmacists and information technology decrease the rate of discrepancies. Potential adverse drug events are a safety issue. The biggest impact made



is with pharmacy involvement and elderly polypharmacy. Pharmacists counsel patients on medications with accuracy and forward the accurate medication information to the next provider of care. To improve access to a patient's medication list, understanding of the patient's diagnosis is useful for the accuracy of their prescription to be properly filled. At the facility, health care providers use the best possible medication history (BPMH) to obtain patient's medication regimen.

The DNP project implemented used tool kits that reduced length of stay and identified gap analysis. ExactCare called for a referral on a patient to distribute labeled medications via packet for easier medication administration and reduction of medication error.

Interviews with patients lasted at least 15 to 20 minutes and, if possible, preferably with caregivers. High-risk patients will require follow-up visits with the health care team after the patient is discharged for further teaching of medication dosage, time, side effects, and any other indications of significance. The improving success rate of reconciliation of medication on admission facilitates discharge reconciliation, allowing time for the hospitalized patient to review and verify medication while in the hospital. At least two sources of explored information of patient medication and knowledge of medication reduce discrepancies.

### **Phase V – Project evaluation process**

*Identify potential problems, educate patients, the consumer.* APN to present the “Teach-Back” technique, an evidence-based approach to improving discharge process by promoting a safe transition from hospital to home (Kornburger et al., 2013). The video was reviewed by family and staff training to stimulate understanding the technique. For example, medications were taught in block intervals isolating one medication at a time. The patient was

asked to describe the medicine in their own words. The nurse facilitated the teaching by repeating any incorrect information. By using open-ended questions such as, “What other questions do you have for me?” the dialogue was used to assess knowledge about teach-back. Findings revealed that the nursing staff demonstrated increased knowledge and were confident in teach-back methods. Limitations are nurses’ understanding of how to implement teach-back.

***Project outcome measurements and plan for evaluation***

*Toolkits and reducing length of stay (LOS) gap analysis with LACE tool*

Meeting: Community-based Care Transition Program CCTP learning sessions discussed medical management. The webinar on CCTP provided information on the LACE tool:

L: Length of Hospital Stay

A: Acuity on admission

C: Comorbidity or the Charlson Comorbidity Index

E: Emergency Department Visits

The goal is to decrease the readmission rate by 20%. The detailed plan of action was customized for the purpose of planning strategic interventions to address health care reform. Medication Management: monitoring of medication and patient compliance to avoid adverse effects. Reconciling medications is done to avoid omissions or duplications, dosage errors or drug interactions. Coaching was facilitated via email, phone calls, and home visits. Time spanned from 20 minutes up to 3 hours.

*Medication Action Plan (MAP)*

- Goal: Health maintenance for hypertension, hypercholesterolemia, hyperglycemia.

- Changes in Medication: Required medication, additional medication, and discontinued medication.
- Education: Medication rationale, adverse reactions, interactions, how to administer, monitor compliance, duration. With pharmacological prevention, there is a demonstrated decline in 30-day readmissions.

The seminar also advised plans of action to prevent hospital readmission within 30 days by developing strategies to assist with the referral process. Strategies include the following: (1) Check strengths and weaknesses. (2) Avoid excuses. (3) Develop an action plan. Hospitals should refer an agreed number of patients. Evaluate coaches' performance via the matrix, retraining coaches when necessary. Staff appropriately: ten coaches, two managers, two specialists. Create center for follow-up calls. Address coach compassion fatigue.

Attended homeless shelter, which assists the socioeconomically underprivileged with food, medication, clothing, shelter, gifts, and social support. The coalition provides supportive social services to people who are homeless and without health insurance. Medications from local pharmacies provide generic drugs at a very low price. Coaches attend the shelter to assist people with blood pressure readings, oxygen saturation monitoring, teaching, counseling, and much more. Food is given to people in need, and clothing donated and distributed. Those who attend suffer hardship, poverty, abuse, fear, and shame and at the same time, strength, encouragement, love, caring and peace because they go there. A referral agency for patients to help prevent hospital readmission, the homeless shelter acts as a community-based organization to assist high-risk patients in avoiding hospital readmission.

The APN recorded a video of two individuals involved in the transitional care program, including family members. They discussed the care received to prevent readmission. The video

was edited and reviewed by the chief of nursing at the facility and used as a promotional tool for the transitional care program.

What was measured was what the patients wanted and what was important to them; what they needed for their transition from hospital to home, rather than hospital care. Measurements of success were based on simple, open-ended questions that included the following:

- “What was your experience with the Transitional Care Team?”
- “What were some of the experiences faced after hospital discharge and how were your challenges met?”
- “How are these experiences currently affecting your daily life and activities?”

Problem solving eliminates the deviation from standards and addresses unfulfilled consumer needs. Where a high-quality standard is not achieved, or where higher standards are required or performance is not consistently achieved, disciplines exist to clarify the problem. Existing safeguards for the protection of vulnerable populations and minimization of adverse effects of insufficient care are the priority. Patient perspective quality measures safeguard consumer communication with providers.

A patient satisfaction group met with the transitional care team and Dr. Mary Naylor during her visit to the hospital for project ACHIEVE (Achieving Patient-Centered Care and Optimized Health in Care Transitions by Evaluating the Value of Evidence) to discuss their experiences and feelings toward the program.

### **Evaluation methods planned**

**Priority risk: Noncompliance with medication,** The improving success rate of reconciliation of medication on admission facilitates discharge reconciliation, allowing time for

the hospitalized patient to review and verify medication while in the hospital. At risk criteria developed included a “gut check” of reliability of both the patient and accuracy of the list. The use of at least two sources of explored information of patient medication and knowledge of medication reduces discrepancies.

Collaborative information and goals on transitioning medication to the next level for patients in the health system include insights to assist in the repair of medication reconciliation and quality improvement. Pharmacists and information technology decrease the rate of discrepancies. Improving access to patients’ medication list and diagnosis for accuracy increases the rate of properly filled prescriptions. Solutions include vigilant medication reconciliation and follow-up communication when discharged with telephone support (Fromer, 2010).

**Second priority risk: Cigarette smoking.** With the exception of the Clean Air Act and bans on smoking in public places, studies show that regulation of smoking may be somewhat unsuccessful (Folland et al., 2013). Cigarette smoking contributes to high death rates per capita (Folland et al., 2013).

The specific (SMART) aim or goals of the proposed improvement project contribute to smoking cessation, (S) systematically identify and document all tobacco use, (M) measure the onset and duration of smoking history, (A) advise smoker to quit, (R) realistic goals with counseling to quit smoking, and (T) telephone and schedule for follow-up.

**Third priority risk: Debilitating comorbidities.** For the challenge of high levels of readmissions, coaching models for patient advocacy require continued tracking to decrease readmissions within 30 days to avoid penalties. High-risk patients will require follow-up visits with the health care team after the patient is discharged for further teaching of medication

dosage, time, side effects, and any other indications of significance. Patients are called within the first three days after discharge and scheduled for a home visit.

Debilitating comorbidities are identified, and collaboration with the health care team is addressed with utilization of the LACE tool: L: Length of hospital stay; A: Acuity on admission; C: Comorbidity or the Charlson Comorbidity Index; and E: Emergency department visits. The goal is to decrease the all-cause readmission rate by 20% for a six-month period. A detailed plan of action was customized for the purpose of planning strategic interventions to address health care reform.

**Fourth priority risk: Non-adherence of the follow-up visit to PMP.** Arrangements are made as necessary for adherence to office visits, including transportation, or meeting at PMD office. Patients are instructed to comply with medications and follow up with PMD as needed. Follow-up with primary care general practitioner after hospitalization also improves patient outcomes.

**Fifth priority risk: Low literacy level increases readmission.** Cultural and language barriers require the use of a voice translation phone system so the patient can communicate in their primary language. Cultural differences are an important factor with regard to advance directives. There is an emotional component to working with the patient. Nurses and practitioners should sit with family members and establish a relationship to better understand cultural questions. Educated nursing staff and employees decrease recidivism. Nurses must advocate for the patient. There should be some standardization of communication skills because service providers' performance will be measured. (Please see the SWOT Analysis, Appendix A, p. 76, and Logic Model, Appendix B, p. 77.)

A coaching meeting was held on April 14, 2015, regarding screening, handoffs, and referrals. Readmissions and report from Central New Jersey Care Transition Program Red Bank, NJ must increase to 68 every two months, approximately 34 to 38 per month. At the time there were 15 patients involved in the coaching process of transitional care. During the meeting, four patients recently readmitted after follow-up visits were discussed. A root-cause analysis was covered, including the following: patients' names, MR#, hospital admission date, readmission date, diagnosis, number of meds, medication compliance, medical issues at home, and high-risk criteria (including five or more medical conditions, ED visits within the last six months, a history of depression, history and functional deficit). Confidentiality was maintained by removing identifying factors such as the patient's name. Patient interaction with the primary care provider, family support, primary goal, other goals, barriers to achieving goals, goal attainment and trigger to readmission for root-cause analysis were reviewed. The list was applied to four recently seen transitional care patients. This format of focus kept the meeting well directed to patient readmission criteria and cause analysis. (See Root Cause Analysis Chart, Appendix C, p. 78.)

### Summary, Conclusion, and Recommendations

The general readmission rate at the facility for patients with chronic obstructive pulmonary disease in 2013 was 25.11 %. In 2014, the rate for COPD readmissions decreased to 23.81%. Readmissions from January to May 2015 for COPD patients fell to 16.55%. In percentage terms, the reduction of COPD readmissions from 2013 to 2014 was 5%, and from 2014 to 2015 it reached 30%. All of these statistics show a downward trend, but that trend is significantly more pronounced for the period of project implementation. The goal was to reduce COPD readmissions by 20% for 2015. The general readmission rate percentage of all course readmissions, excluding those admitted to other hospitals are showing a decrease of 16.47% from January to May 2015.

% of facility all course readmission excluding those admitted to other hospitals			
General readmission rate	2013	2014	2015 (January-May)
	12.71%	10.26%	8.57%
		(19.26% decrease from 2013)	(16.47 % decrease from 2014)

% of facility readmissions specific Diagnosis-related group (DRG)			
	2013	2014	2015
CHF	26.61%	22.12%	13.21%
COPD	25.11%	23.81%	16.55%
Pneumonia	13.83%	8.26%	11.58%
Acute Myocardial Infarction	28.13%	20.00%	30.77%

% of Readmission Reduction		
	2013-2014	2014-2015
CHF	17%	40%
COPD	5%	30%



Recommendations include financial funding to continue implementation of the transitional care model. Determining the underlying cause of smoking addiction and further education may also be an area for further research to consider. Nurses and trained technicians need training modules for the identification of patients in respiratory distress. Further research in the ambulatory setting for the prevention of exacerbations may find more cost-effective treatments, especially in the more severely affected individuals at risk for treatment failure. Further studies of cost-effective treatment alternatives including supplemental home oxygen for adults with emphysema might consider devices that could improve cost-saving systems. The development of easy to understand educational modules for patients on practitioner orders for life sustaining treatment (POLST) to make decisions for their health care goals together with the primary care physician or nurse practitioner. Educating the nursing staff on the LACE Tool assists the transitional health care team in identifying patients at high risk for readmission. APN continued use of the PHQ-9 patient health questionnaire for patients with COPD to identify patients' needs, severity of depression and follow-up treatment. A patient survey on medication management and follow-up care with PCP to monitor medication and patient compliance to avoid adverse effects is recommended.

### **Sustainability**

The patient should have the dispatchers' telephone number and contact information for Transitional Care Program for questions and concerns. Educate patient using informative pamphlets. Booklets on CHF and COPD can be given out to patients in Spanish and English for consistency in education along with calling card information.

Teamwork and collaboration include a goal of strengthening relationships for patient-centered care. Involving family members and caregivers in the process is the primary objective of sustainability. Build and sustain trust with dedication and commitment where there is a cultural issue. The willingness to learn and integrate results with family members between visits was well received. Participation by family caregivers improves consistency in patient care and efficient outcomes.

The teamwork and collaboration involved with working out readmission plans was shared among team members in my logic model. The shared vision for change included a common understanding of the problem and approaches to solving it with specific individualized actions. Understanding the scope of practice among collaborative teams minimizes the risks to patients. The focus was on recognition of outcomes as a result of collaborative efforts.

Gathering data and measuring results across all clients confirmed that efforts remain aligned. Client activities are differentiated while still being coordinated or collected through a plan of reporting and assessment. Clients and providers must provide reliable and open communications to build trust, assure achievement of mutual goals, and encourage shared motivation and purpose. Coordination of activities, shared learning, and communication clarify data concerns and help address obstacles.

Evidence-based practice and years of clinical expertise sustain the management of best practices by minimizing risk and promoting safe environments for patient care. Knowledge, skills, and attitudes (KSA) offered changes in patient care for methods to improve the quality and safety of healthcare systems. The LACE tool and quality measures are used to identify gaps and variations in care. For patients with comorbidities, the length of hospital stay and emergency room visits were considered. The shared vision for change includes common understanding of the problem and approaches to solving it with specific actions.

Change and incorporate this information to be more effective, safer, or to effect more positive change. The Interdisciplinary Plan of Care (IPOC) is intended to ensure that optimal outcomes for the patient are met during hospitalization. High-risk patients generally include patients on hospice and patients with dementia, for example. For the LACE tool, nurses need to be educated on the use and criteria. Without comprehension, a higher rate of transitions may occur because the referral is not appropriate. High scores initiate IPOC for transitions of care. The initial conference determines what can be eliminated or added for the LACE tool. Review of information was discussed at the next scheduled meeting with nursing management for incorporation into the electronic medical record (EMR).

Further discussion and conformation of ongoing communications is required. Assess every admission to evaluate risk for readmission and refer to transitional care team by phone or email. Educate patients and use teach-back methods. Discuss with doctors to adjust medication and socioeconomic issues. Let patients make their own decisions about their choices.

Replication of this project using the same methods is possible on different subjects at various locations. Currently, the project is ongoing.

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## Appendices

### Appendix A

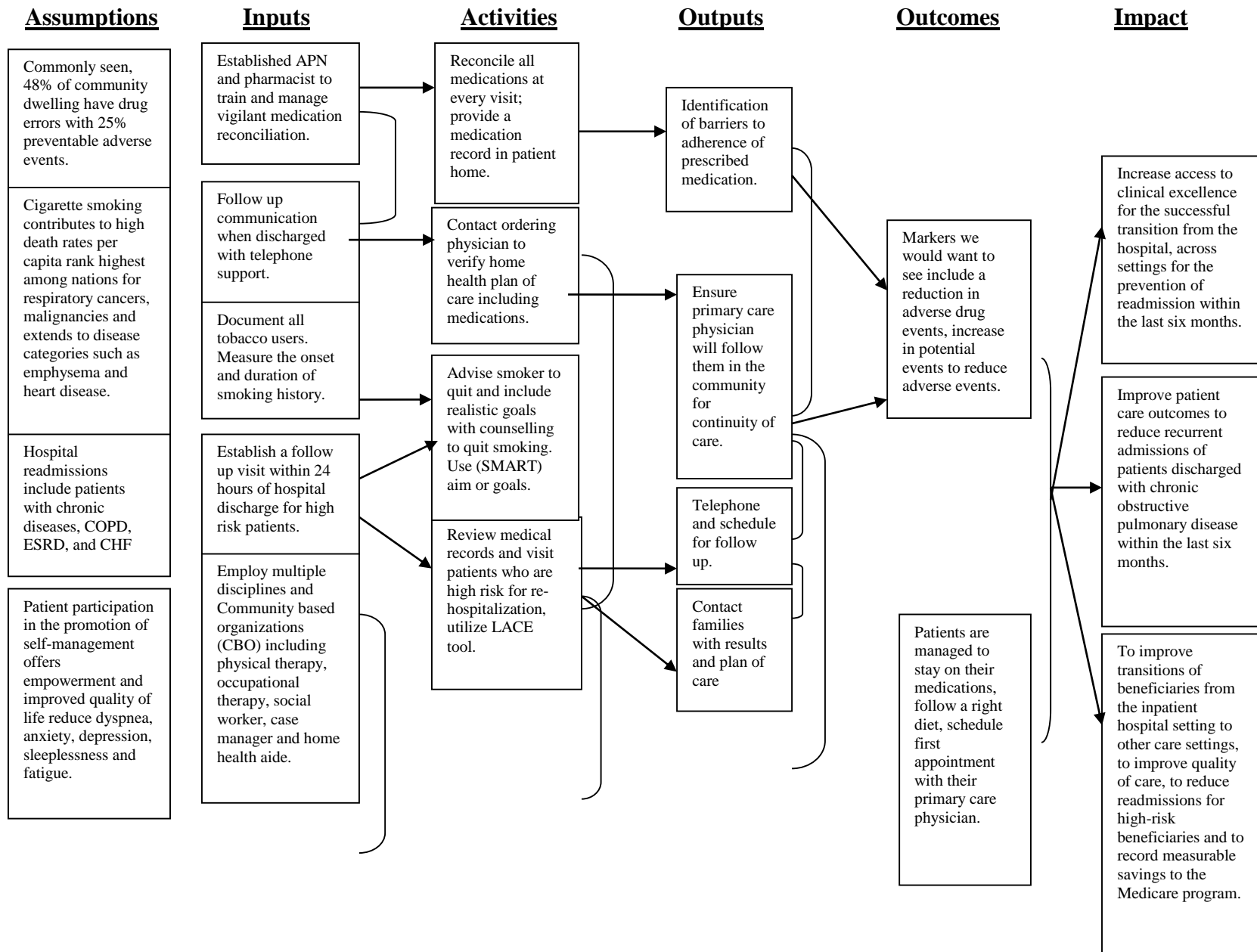
#### SWOT analysis

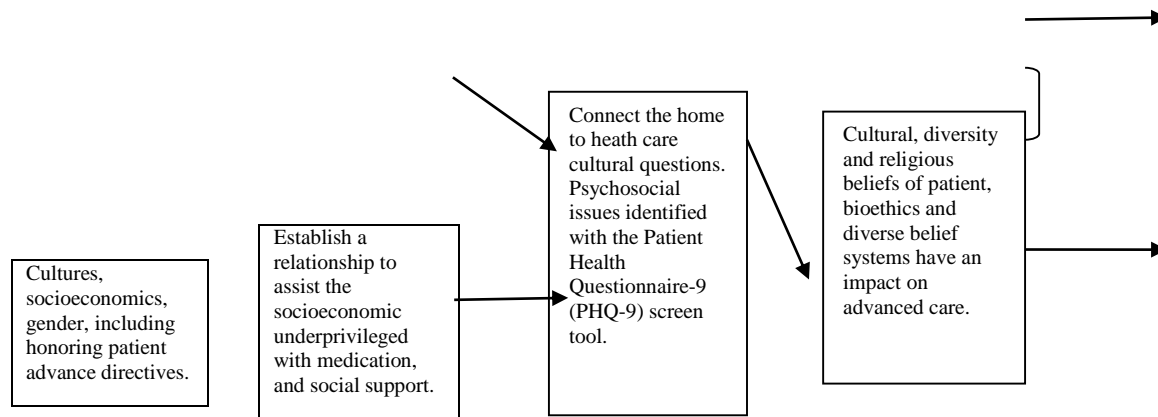
##### Positive

##### Negative

Internal	<p><b>Strengths</b></p> <ol style="list-style-type: none"> <li>1. Patient focused education in hospital for COPD and comorbidities.</li> <li>2. Use of EBP to improve symptoms outcomes, preventing readmission.</li> <li>3. Organized coordination of care for cost containment and reduction of overuse of unnecessary services.</li> <li>4. Plan follow-up home visits with patient consent while hospitalized.</li> <li>5. Leadership that involves steering change through organizational structures including clinicians, nurses, and respiratory therapists, case managers, physicians, and pulmonary rehabilitation clinics for the improvement of activity tolerance in COPD patients.</li> </ol>	<p><b>Weaknesses</b></p> <ol style="list-style-type: none"> <li>1. Lack of effective “handoffs.”</li> <li>2. Fragmented home care initiatives.</li> <li>3. Gaps in quality care for low-income groups.</li> <li>4. Use of a valid assessment tool to identify predicted readmission rate for at-risk patients for the implementation of further follow-up care after discharge.</li> <li>5. Identifying gaps in care near end of life, including patient-centered, family-oriented approach to care in near end of life, helps advance care planning.</li> </ol>
External	<p><b>Opportunities</b></p> <ol style="list-style-type: none"> <li>1. Investment in transitional care pharmacist and information technology decreases the rate of discrepancies.</li> <li>2. Reducing recurrent readmission for patients with COPD.</li> <li>3. Promote family involvement.</li> <li>4. Make resources available to patient.</li> <li>5. Lung health programs that inspire and motivate patients with shortness of breath to improve levels of energy with exercise at a pace that conserves energy while maintaining a healthy diet.</li> </ol>	<p><b>Threats</b></p> <ol style="list-style-type: none"> <li>1. Noncompliance with medication.</li> <li>2. Cigarette smoking contributes to high death rates per capita.</li> <li>3. Debilitating comorbidities.</li> <li>4. Non adherence of follow up visit to PMP.</li> <li>5. Low literacy level increases readmission.</li> </ol>

## Appendix B: Logic Model





## Appendix C

## Root Cause Analysis Chart

Patient name	Patient #1 (Patient of coach)	Patient #2 (Patient of coach)	Patient #3 (Patient of social worker)	Patient #4 (Patient of social worker)
Hospital admission date	4/1/15	3/9/15	3/16/15; 3/22/15	1/28/15; 2/16
Readmission date	4/7/15	4/1/15	4/11/15	3/17
Diagnosis	A-fib	COPD, CHF	COPD, CHF, lung cancer, post-obstructive pneumonia	COPD, pneumonia, CHF, chronic kidney disease
# of Medications	11	10	15	13
Medication compliance	Did not take Cardizem or metoprolol day of home visit	Yes	Yes	No
Medical issues at home	None. Has home care	Home oxygen and nightly BiPAP	Home oxygen and nightly BiPAP, nebs	Lives alone
<b>High risk criteria:</b> 1. Five or more critical conditions 2. ED visits in last 6 months 3. History of depression 4. History of functional deficit	CHF, A-fib, HTN, ESRD, dementia	End stage COPD, CHF, (OSA), obesity,	HTN, sepsis, DM, CAD, hypothyroid, GI bleed obesity	COPD, smoker, CHF, CKD, pneumonia
	2	3	3	5
	Dementia	No	Yes	Yes. Smokes marijuana, schizophrenia
	No physical deficits	Exertional dyspnea with minimal activity	Uses walker	Yes. Cannot ambulate. Uses wheelchair.
Patient interactions with PCP (does patient have a good rapport with PCP?)	Patient has good rapport with PCP	Good	Good	No
Family support	Yes, Daughter	Son lives with mother	Daughter lives close by	Mother enabler. Abuses mother.
Primary goal	Take meds, renal diet compliance	Function to capacity	Physical therapy, Holy Redeemer	Self-medicate
Other goals	Diet education	Use Oxygen and BiPAP	Increase activity and social contacts	Physical therapy. Discharge home.
Barriers to goal achievement	Dementia	Shortness of breath	Shortness of breath, walker, obesity	Cannot ambulate. Manipulative.
Goal attainment	Family to understand diet	Continued use of meds, oxygen	Weight loss	Discharge with home care.
Trigger to readmission	Rapid a-fib after hemodialysis	End stage COPD, CHF	Post-obstructive pneumonia secondary to lung	Home care assistance.
Could readmission have been avoidable?	No. Refer to THRIVE program: H&P, current med list, Labs < 30 days from referral	No	No	Currently in subacute rehabilitation facility.

## Appendix D

## LACE Index Scoring Tool

MR# \_\_\_\_\_

UNIT \_\_\_\_\_

DOS \_\_\_\_\_

**LACE index scoring tool****Step 1. Length of Stay**

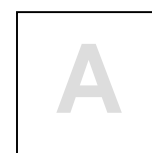
Length of stay (including day of admission and discharge): \_\_\_\_\_ days

Length of stay (days)	Score (circle as appropriate)
1	1
2	2
3	3
4-6	4
7-13	5
14 or more	7

**Step 2. Acuity of Admission**

Was the patient admitted to hospital via the emergency department?

If yes, enter "3" in Box A, otherwise enter "0" in Box A



**Step 3. Comorbidities**

Condition (definitions and notes on reverse)	Score (circle as appropriate)	<p>If the TOTAL score is between 0 and 3 enter the score into Box C. If the score is 4 or higher, enter 5 into Box C</p> <div>C</div>
Previous myocardial infarction	+1	
Cerebrovascular disease	+1	
Peripheral vascular disease	+1	
Diabetes without complications	+1	
Congestive heart failure	+2	
Diabetes with end organ damage	+2	
Chronic pulmonary disease	+2	
Mild liver or renal disease	+2	
Any tumor (including lymphoma or leukemia)	+2	
Dementia	+3	
Connective tissue disease	+3	
AIDS	+4	
Moderate or severe liver or renal disease	+4	
Metastatic solid tumor	+6	
<b>TOTAL</b>		

**Step 4. Emergency department visits**

How many times has the patient visited an emergency department in the six months prior to admission (not including the emergency department visit immediately preceding the current admission)? \_\_\_\_\_

Enter this number or 4 (whichever is smaller) in Box E

E

Add numbers in Box L, Box A, Box C, Box E to generate LACE score and enter into box below. If the patient has a LACE score greater than or equal to 10 the patient can be referred to the virtual ward.

LACE



**LACE Score risk of readmission: 0 - 4 Low, 5 - 9 Moderate, > 9 High Risk**

<b>Condition</b>	<b>Definition and/or notes</b>
Previous myocardial infarction	Any previous definite or probable myocardial infarction
Cerebrovascular disease	Any previous stroke or transient ischemic attack (TIA)
Peripheral vascular disease	Intermittent claudication, previous surgery or stenting, gangrene or acute ischemia, untreated abdominal or thoracic aortic aneurysm
Diabetes without microvascular complications	No retinopathy, nephropathy, or neuropathy
Congestive heart failure	Any patient with symptomatic CHF whose symptoms have responded to appropriate medications
Diabetes with end organ damage	Diabetes with retinopathy, nephropathy or neuropathy
Chronic pulmonary disease	-
Mild liver or renal disease	Cirrhosis but no portal hypertension (i.e., no varices, no ascites) or chronic hepatitis  Chronic renal disease
Any tumor (including lymphoma or leukemia)	Solid tumors must have been treated within the last 5 years; includes chronic lymphocytic leukemia (CLL) and polycythemia vera (PV)
Dementia	Any cognitive deficit
Connective tissue disease	Systemic lupus erythematosus (SLE), polymyositis, mixed connective tissue disease, moderate to severe rheumatoid arthritis, and polymyalgia rheumatica
AIDS	AIDS-defining opportunistic infection or CD4 < 200
Moderate or severe liver or renal disease	Cirrhosis with portal hypertension (e.g., ascites or variceal bleeding)  End stage renal disease, hemodialysis or peritoneal dialysis
Metastatic solid tumor	Any metastatic tumor

## Appendix E

## PHQ-9 depression scale

## PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

Over the last 2 weeks, how often have you been  
bothered by any of the following problems?  
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns  +  + 

(Healthcare professional: For interpretation of TOTAL, TOTAL:   
please refer to accompanying scoring card).

10. If you checked off <i>any problems</i> , how <i>difficult</i> have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

## PHQ-9 Patient Depression Questionnaire

### For initial diagnosis:

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 ✓s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

### Consider Major Depressive Disorder

- if there are at least 5 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

### Consider Other Depressive Disorder

- if there are 2-4 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

**Note:** Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.

Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

### To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add up ✓s by column. For every ✓: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

### Scoring: add up all checked boxes on PHQ-9

For every ✓ Not at all = 0; Several days = 1;  
More than half the days = 2; Nearly every day = 3

### Interpretation of Total Score

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

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## Appendix F

## COPD patient characteristics and demographics with LACE tool evaluation and PHQ-9 depression scale

Patient	Age	Gender	Race	Support System	Diagnosis of COPD and comorbidities	Smoking History	Assessment	High risk patient LACE tool: -LOS -Acute admission -Comorbidity -ER visits last 6 months	Transition of care to setting Home, SNF, SAR, Hospice	PHQ-9 Depression scale	Medication Management	Root cause of poor outcome
Patient #1	54	Female	Hispanic	Husband	COPD, acute asthma exacerbation, is a current smoker, is obese, hypertensive, Diabetic, has hypothyroidism and CHF.	40 pack years, current smoker	Using nebs, SOB, Wheezing in home filled with smoke. Loose cough with phlegm production, yellow-white.	6+3+3+3=15 High Risk	Home visit (2 <sup>nd</sup> attempt to do home visit, declined 1 <sup>st</sup> attempt.	Patient health questionnaire asked of all patients PHQ-9 score 15-19 Moderately severe depression	duoneb q 6hours PRN, aspirin 81 mg daily, synthroid 25 mcg po daily Lasix 40 mg po bid, doxycycline 100 mg po BID, prednisone 30 mg taper. Omeprazole 40 mg po daily, sucralfate 1 G po daily gabapentin 300 mg po tid, clonidine 1 mg po daily, isosorbide 20 mg po bid, Lantus 30 units subcutaneously daily, apidra 30 units AC meals, daily, carvedilol 12.5 mg po bid, Cardizem 60 mg po .daily.	Smoked and burning incense at home. Medications were accounted for and patient is aware of the required dose and purpose of meds
Patient #2	88	Female	Caucasian	2 sons, Florida, South Jersey	COPD, HTN, GI bleed, anemia, HA	73 pack years, currently 3/day	Right arm 200/100 Manual cuff; 183/103 after smoking. B/P returned to normal after 15 min. Sat 98%, HR 81	4+3+2+0= 9 High Risk	Home visit	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression.	D/C'd NSAID for recent GI bleed. Refusing eye drops for glaucoma. Teaching done to call eye Dr. and discuss. C/O HA, refused to quit smoking.	Upset because Medicare was billed \$ 1,300 for tests that were required prior to eye surgery.

Patient	Age	Gender	Race	Support System	Diagnosis of COPD and comorbidities	Smoking History	Assessment	High risk patient LACE tool: -LOS -Acute admission -Comorbidity -ER visits last 6 months	Transition of care to setting Home, SNF, SAR, Hospice	PHQ-9 Depression scale	Medication Management	Root cause of poor outcome
Patient #3	57	Female	African America	She lives alone, works as a bus driver, unable to work at this time.	SOB, MVR, left and right pleural effusion, COPD, OSA, significant pulmonary hypertension from long standing valvular heart disease.	Quit smoking last year after her Mitral valve repair surgery, however stated she smoked over 30 years. She still craves cigarettes, but is reluctant to smoke.	B/P manual sitting 104/60 HR 93, O2 sat on 2 liter oxygen 98%, RR 18, B/P on patients mechanical B/P machine is 123/94. Coughs intermittently during the day and has white phlegm production. difficulty breathing while talking on RA. Currently using home oxygen at 2L	6+3+2+0=11 High Risk	Home Visit	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression	Missing: spiro lactone 25 mg po daily. Not ordered and patient is taking: Torsemide 20 mg po daily, metoprolol 25 mg po BID Pt. has multiple PCP, needs f/u. Advair discus 500/50 mcg 1 puff BID, Coumadin 5 mg po nightly (for insertion of ring annuloplasty), iron 65 mg po daily, hydromorphone 2 mg po q 8 hrs prn, metformin 500 mg po BID, KCL 20 meq ER one tablet po daily, protonix 40 mg	Oxygen saturation on room air in 10 minutes while sitting 91-92%. Arlene refuses to use her CPAP machine nightly.
Patient #4	45	male	Puerto Rico	Patient works as an outdoor environmentalist, lives with family.	Dyspnea, acute COPD exacerbation, Acute onset of CHF, OSA, Obesity, HTN and HA. Bun 28, creatinine 1.35, (potential poor renal perfusion 2nd to CHF). WBC 26, Hgb 13.3, Hct 40.3, platelets 477. BNP 23	Denied smoking history.	Visited and obtained V/S HR 69, RR 20, T 98.4, B/P 106/66, Sats 98 % on room air.	6+3+2+1+11 High Risk	Transferred to Kindred.	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression	Use BiPAP nightly. Wear a mask at work. Patient receptive to teaching. Medication not reviewed during inpatient prior to discharge. Teaching done to decrease fluid intake, lose weight, and decrease sodium intake.	

Patient	Age	Gender	Race	Support System	Diagnosis of COPD and comorbidities	Smoking History	Assessment	High risk patient LACE tool: -LOS -Acute admission -Comorbidity -ER visits last 6 months	Transition of care to setting Home, SNF, SAR, Hospice	PHQ-9 Depression scale	Medication Management	Root cause of poor outcome
Patient #5	80	Female	African American	Mother of 3 men, all single, all living at home.	Hypoglycemia, DM type I, Fall, Syncope, Atherosclerotic heart disease, S/P pacemaker, osteoarthritis to the right knee and trauma to the right knee, CHF, History of deep vein thrombophlebitis, pulmonary embolism, mild asthma, COPD, nausea, severe HTN.	Denied smoking	Patient as weak, with headache and nausea. She appeared a bit stronger. BG checked was 104 after juice and famotidine. Nausea subsiding. B/P 200/100 in right arm with manual B/P cuff. Patient did not take any of her medication this morning due to nausea, now improving. B/P meds given along with am meds B/P was rechecked and came down to 160/80.	6+3+3+4=16 High risk	Recently discharged home on October 14th, 2014, Home visit October 16 <sup>th</sup> . <b>Readmitted intubated 1 month, 14 days later. 12/2/14</b>	Patient health questionnaire asked of all patients PHQ-9, 15-19 score Moderately severe depression	Medication: Advair Discus 250mcg/50 mcg 1 puff BID, allopurinol 100 mg po daily, amlodipine 10 mg po daily, famotidine 20 mg po daily, hydralazine 50 mg po BID, isosorbide mononitrate 60 mg extended release po daily, losartan 50 mg po BID, metoprolol extended release 50 mg po BID, QUETiapine 25 mg po daily, simvastatin 40 mg po daily, sitalGLIPTin 50 mg po daily, tricagrelor (Brilinta) 90 mg 1 tab po BID, torsemide 10 mg po daily.	Potential noncompliance with medication.
Patient #6	54	female	Hispanic	Lives with husband	Recently had a home visit, found wheezing in a smoke filled room was readmitted to TRMC with diagnosis of Asthma exacerbation. Now on Zolof, depressed.	40 pack years with recent smoking.	Depressed, crying.	6+3+3+3=15 High Risk Readmitted	Readmitted to TRMC hospital from home	Patient health questionnaire asked of all patients PHQ-9, 15-19 score Moderately severe depression	Zolof added to current medication list above.	Noncompliance with quitting smoking.

Patient	Age	Gender	Race	Support System	Diagnosis of COPD and comorbidities	Smoking History	Assessment	High risk patient LACE tool: -LOS -Acute admission -Comorbidity -ER visits last 6 months	Transition of care to setting Home, SNF, SAR, Hospice	PHQ-9 Depression scale	Medication Management	Root cause of poor outcome
Patient #7	52	Male	Hispanic		COPD, Unstable angina, DM, essential HTN with a history of a recent MI in July that had similar symptoms of chest pain after smoking a cigarette with a cold sweat and shortness of breath.	Carries a 40 pack year history of smoking, quit in July when he needed a stent.	B/P was 151/95		Currently in hospital	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression		States he does zero exercise. Agreed to follow up home visit.
Patient #8	63	Female	Caucasian	Lives alone, widow no children. Husband died at age 32 of lung cancer.	COPD, CHF, CAD	Pt carries 53 years of 3 packs/day of smoking cigarettes. Has smoked since 9 up to age 62, quit last year	Pt. weight is 118 lbs., oxygen saturation is 98%, HR 77, B/P 188/60. Her lungs are clear, HR is regular with occasional gallops. She denies any chest pain or SOB.	0+0+2+0=2 2= low risk	Lives alone at senior citizen apartment . Patient has no telephone.	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression	Patient medications: aspirin 81 mg po daily, carvedilol 6.25 mg 1 tablet po BID, digoxin .125 mg po daily, fluoxetine 10 mg po od, Lasix 20 mg po od, levothyroxin 25 mcg po OD	lisinopril 10 mg po od, Plavix 75 mg po daily, simvastatin 20 mg po daily, spiro lactone 25 mg po daily. Patient doing well, <b>will not need f/u home visit.</b>
Patient #9				Daughter phoned for follow up and stated to APN, "Please don't call anymore!"			Patients aide was called and stated he is in RWJUH Rahway.					Patients home visited with no answer.

Patient	Age	Gender	Race	Support System	Diagnosis of COPD and comorbidities	Smoking History	Assessment	High risk patient LACE tool: -LOS -Acute admission -Comorbidity -ER visits last 6 months	Transition of care to setting Home, SNF, SAR, Hospice	PHQ-9 Depression scale	Medication Management	Root cause of poor outcome
Patient #10	52	Male	Hispanic	Divorced, shares custody of children with ex-wife Pt. stated his brother purchased his medications.	c/o dizziness and shortness of breath, high blood pressure prior to recent admission. Today V/S HR78, oxygen saturation on room air 97%, B/P 110/80. Patient is working on Monday as a forklift operator		B/P115/80		In patient for stress test	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression	Simvastatin may cause muscle pain. lisinopril may cause dry cough. Lasix may cause loss of potassium and frequent urination. Decrease fluid intake to 1000 ml/day. Weigh every day at the same time. If weight increases 2 lbs in one day or 5 lbs in one week, call PMD.	
Patient #11	41	Female	Caucasian	She has an 18 year old daughter	chest pain, DM, HTN, COPD carpal tunnel Is also obese, however lost 88 lbs with diet.	Carries a 28 pack year history.	Normal chest. Nodule on left breast on CT scan.	4+3+2+0=9 High risk	In patient for transfer home	PHQ-9, score 1-4 Minimal depression	Heart health pamphlet given to fill in medications on card and carry with her	Does not know her medication.
Patient #12	53	Female	African American	Lives in the projects and tends to seven grandchildren ranging from 1 month to 17 years old.	COPD, TIA, uncontrolled hypertension, dizziness, light headedness, right facial numbness, obesity, Hepatitis C.	Smoking from age 18-23, 5 years.	Patient V/S T 97.9, HR 79 RR 18, B/P 129/84 Patient signed herself out AMA despite the warning that she could die if her symptoms worsen.	6+3+2+3=14 High Risk of readmission rate.	Pt. signed herself out AMA despite the warning that she could die if her symptoms worsen. Recent readmission with CVA 12/5/14	Patient health questionnaire asked of all patients PHQ-9, score 1-4 Minimal depression	Knows medications Clonidine, synthroid, HCTZ, tramadol. Gave booklet to read for heart health.	Noncompliance



Patient	Age	Gender	Race	Support System	Diagnosis of COPD and comorbidities	Smoking History	Assessment	High risk patient LACE tool: -LOS -Acute admission -Comorbidity -ER visits last 6 months	Transition of care to setting Home, SNF, SAR, Hospice	PHQ-9 Depression scale	Medication Management	Root cause of poor outcome
Patient #13	57	Female	African American		Patient was discharged from the hospital on 10/31/14 with an admitting diagnosis of COPD, DM, OSA,			6+3+2+4=15 High risk of readmission rate	Lives alone in a senior citizen center. Was readmitted to ICU in 1 week, again 2 weeks	Patient health questionnaire asked of all patients PHQ-9, 15-19 score moderately severe depression	on steroids/Advair Spiriva	needs counseling on smoking cessation, how to take meds